CONSUMER BEHAVIOUR ANALYSIS

AN INTRODUCTION TO THE SPECIAL ISSUE

In this paper, we describe the nature of consumer behavior analysis, the development of a model of human consumer choice, and some of the research that it has inspired, and to draw some conclusions about the development of consumer behavior analysis. First, we describe the background thinking that inspired this work, notably by reference to the Behavioral Perspective Model as a device we have used to introduce behavior analytical thinking into the consumer domain, and also to some of the research endeavor that this has led to. We turn, finally, to the contents of this issue and their relationship to the ongoing consumer behavior analysis research program.

THE NATURE OF CONSUMER BEHAVIOR ANALYSIS

Consumer psychology is usually cognitive in orientation. Scores of consumer behavior texts assume this theoretical position without considering the philosophical implications of the concepts on which they rely to explain choice, let alone offering any philosophical justification for the cognitive stance itself. It is rare for the writers of these texts, as it is for consumer psychologists generally, to consider that an alternative paradigm, behavior analysis, can assist in the explanation of consumer choice. Yet there is a large volume of evidence to show that economic behavior is sensitive to environmental contingencies. Specifically, the subdiscipline of *behavioral economics* is concerned with the combination of experimental economics and operant psychology to elucidate economic relationships. Much of the work in behavioral economics has been concerned with nonhuman animals, though there is an increasing tendency to apply the methods developed in the operant chamber to a wide range of applied human problems. *Consumer behavior analysis* is the application of behavioral economics to the sphere of human consumer choice, particularly in the context of advanced marketing-oriented economies. Now, marketing brings a further level of complexity to what is already a multi-disciplinary exercise. There are considerations stemming from human marketing activity that are never encountered in the laboratory regardless of whether the subjects are human or nonhuman. The very concept of exchange, for instance, is either non-existent in the non-marketing environment or very much less complicated. Considerations of price, which are easily replicable in experiments, are compounded by those of advertising, distribution, and subtleties of product characteristics, as well as by issues of status consumption and interpersonal effects that are absent from behavioral economics work in non-marketing environments. It is the aim of consumer behavior analysis to comprehend marketing-led consumer choice in terms of behavior analysis: to understand how far the methods of behavioral economics can be transferred from their original contexts to the marketing sphere, to recognize differences in human marketing behavior that require behavioral economics to be modified, to arrive at the boundaries of a behavior analytical interpretation of complex human behavior.

THE BEHAVIORAL PERSPECTIVE MODEL

The BPM is an elaboration of the three-term contingency, modified to take into account the complexities introduced by social and economic institutional arrangements that govern marketing activity. Consumer choice takes place at the intersection of the consumer's learning history and the current consumer behavior setting, i.e., where the experience of consumption meets an opportunity to consume anew. This intersection of time and space forms the consumer situation, the immediate shaper of approach—avoidance responses involved in purchase and consumption. The *consumer behavior setting* is composed of the stimulus antecedents of that behavior, some of which will have been present on earlier consumption occasions. In the presence of the individual's learning history, these initially neutral stimuli are transformed into the discriminative stimuli that set the occasion for current choice; in particular, his or her consumption history invests them with kind of meaning, i.e., the capacity to generate specific kinds of approach and or avoidance behaviors which produce consequences that regulate the rate of recurrence of the behaviors that produced them. The consumer situation consists also of motivating operations (MOs) such as rules that invest the consequences inherent in the discriminative stimuli with additional motivating or inhibitory power by making the consequences of radical behaviorism appear more or less reinforcing, more or less punishing.

Like the three-term contingency, then, the BPM specifies behaviorally antecedent stimulus conditions (the behavior setting) but combines the concepts of discriminative stimuli and motivating operations by means of the construct of behavior setting *scope*, the extent to which these setting elements encourage or inhibit the behavior predicted to occur in such settings. Behavior setting scope is conceptualized as a continuum from closed to open in which the former type of setting permits one or at best a very few behaviors to be enacted within its confines, while the latter type permits a whole range of often competing behaviors to be enacted.

The consequences of behavior fall into three types: utilitarian reinforcement which consists in the functional outcomes of behavior, informational reinforcement, which stems from the symbolic outcomes, principally performance feedback, and aversive/punishing consequences, the costs of purchase and consumption. Such aversive outcomes can themselves be subdivided into those that are utilitarian in nature and those that are symbolic.

In summary, then, we are looking at consumer behavior as a function of utilitarian reinforcement, informational reinforcement, and aversive consequences.

Operant Classes of Consumer Behavior

By combining high and low levels of utilitarian reinforcement and high and low levels of informational reinforcement, we can posit four operant classes of consumer behavior as shown in Figure xx. This figure represents at this stage no more than a hypothesis and the labels attached to the four classes of consumer behavior are purely arbitrary – though they have proved very useful in subsequent research.

The four broad classes of consumer behavior which can be inferred from the pattern of high/low utilitarian and informational reinforcement that maintains them are as follows.

Accomplishment is consumer behavior reflecting social and economic achievement: acquisition and conspicuous consumption of status goods, displaying products and services that signal personal attainment.

Hedonism includes such activities as the consumption of popular entertainment.

Accumulation includes the consumer behaviors involved in certain kinds of saving, collecting, and installment buying.

Finally, *Maintenance* consists of activities necessary for the consumer's physical survival and welfare (e.g. food) and the fulfillment of the minimal obligations entailed in membership of a social system (e.g. paying taxes).

Note that both types of reinforcer figure in the maintenance of each of the four classes, though to differing extents.

The BPM Contingency Matrix

Adding in the scope of the current behavior setting, leads to the eightfold way depicted here which shows the variety of contingency categories that exclusively constitute a functional analysis of consumer behavior. Let us take a closer look at the four broad operant classes of consumer behavior with the added complexity of consumer behavior setting scope added in.

Accomplishment

Accomplishment in an open setting consists in general in the *purchase and consumption of status goods*. A familiar instance is pre-purchase consumer behavior for luxuries and radical innovations such as exotic vacations and iPhones. These behaviors, including window-shopping and browsing, involve search for and comparative evaluation of information about many products and services. Most of the items in question are possessed and used for the pleasure or ease of living they confer, the wellbeing they make possible for the individual: they thereby provide extensive hedonic rewards. But they are often status symbols and their conspicuous consumption also strengthens the behavior in question. They attest directly, and often publicly and unambiguously, to the consumer's attainments, especially economic. Goods in this category are usually highly differentiated — by novel function in the case of innovations, by branding in the case of luxuries.

In a closed setting, Accomplishment can be generally described as *fulfillment*. In such a context, it comprises personal attainments gained through leisure, often with a strong element of recreation or excitement as well as achievement. This category refers to the material contribution to *fulfillment* and could include both the completion of a personal development seminar such as Insight and gambling in a casino. Gambling in so closed a setting is an activity maintained by both hedonic and informational consequences. In addition, few consumer behaviors are maintained so thoroughly by social rules. All these elements of the setting unambiguously signal both the positive consequences of approved approach behaviors and the potentially

punishing implications of escape or avoidance responses which flout established rules and gaming conventions. Although several games may be available in the casino, there is one principal reinforcer: winning. Pleasure and social approval stem mainly from success, though a certain amount of enjoyment and prestige may be derived from being part of a somewhat exclusive social group and conforming to its code of behavior. Closely defined acts must be performed in order to participate, including obtaining membership, dressing appropriately, entering the game at the right time and in an acceptable manner.

Hedonism

In an open setting, this behavior generally consists of *popular entertainment***.** Obvious examples are watching television game shows which provide near-constant hedonic reward, and the reading of mass fiction which contains a sensation on almost every page. iPods and DVDs have made such reinforcement more immediate to the point of its being ubiquitous. Mass culture presents frequent and predictable, relatively strong and continuous hedonic rewards which are not contingent on long periods of concentrated effort. Indeed, the arrangement of reinforcers is such that viewing, listening or reading for even a short interval is likely to be rewarded. Informational feedback is more obvious on some occasions than others, as when game shows allow the audience to pit their own performances against that of the competing participants, but it is not the main source of reward.

Hedonism in closed settings consists as a generalization of inescapable entertainment and amelioration. The behaviors in question are potentially pleasurable but — in this context — may be irksome because they are unavoidable. As a result, consumption of these products and services may be passive rather than active. An example is the situation in which long distance airline passengers must purchase meals and movies along with their travel. The meals are usually consumed, like the in-flight movies which follow them, without alternative. The setting, which cannot be other than highly restrictive if one is to arrive safely, is further closed by the pulling of blinds, the disappearance of cabin staff, the impossibility of moving around the plane, and the attention of one's fellow passengers to the movie. To try to read or engage in other activities may even invite censure.

Accumulation

In an open setting, Accumulation is generally described as *saving and collecting***.** For example, purchases for which payments are made prior to consumption -- installments for a holiday which can only be taken once the full amount has been paid. Another example is payments into a Christmas club. Discretionary saving with the intention of making a large purchase once a certain amount has accumulated, would fall into this category, too. Promotional deals requiring the accumulation of coupons or other tokens before a product or service can be obtained also belong here. The important reward, in every case, is informational, feedback on how much one has accumulated, how close one is to the ultimate reinforcer.

Accumulation occurring in a closed setting may be described, in general terms, as *token-based buying*. This also involves collecting — through schemes in which payment for one item provides tokens which will pay for another. Although some examples of this are quite recent, the practice is simply an extension of the familiar prize schemes open to collectors of cigarette cards or trading stamps. For example, the “air-miles” earned by frequent flyers on domestic and international

airlines constitute informational reinforcers (Foxall, 1997b). Some hotels also offer gifts to customers who accumulate points by staying there frequently. The collection of these tokens is reinforced by gaining additional free air travel or hospitality, or by access to different types of reinforcer such as prizes. Purchase and consumption of the basic product, the air travel or accommodation originally demanded are maintained by both the intrinsic hedonic rewards they embody and the feedback on progress that is being made toward the ultimate incentive. The setting is relatively closed because the first item would probably be purchased anyway in some form or other and the consumer's income constraint makes it likely that the second or backup reinforcer would be obtained only in this way.

Maintenance

In an open setting, Maintenance may be generally described as *routine purchasing and consumption*. This includes the regular buying of goods necessary for survival. For example, the habitual purchasing of grocery items at a supermarket. Consumer behavior in these circumstances is indeed routine: it occurs as if reinforcement were available only at fixed intervals. Further, contrary to the usual depiction, the frequent consumer of , say, baked beans is highly rational, having tried and evaluated many brands in the relevant product class. But his or her behavior is not static: again in contrast to the received wisdom of the marketing texts, comparatively few such consumers are brand loyal in the sense of always choosing the identical brand in a long sequence of shopping trips. There is so much choice that the consumer enjoys considerable discretion among versions of the product (Ehrenberg, 1988/1972).

Maintenance is generally characterized in closed settings as *mandatory purchase and consumption*. It includes all forms of consumer behavior necessary to remain a citizen: the payment of taxes for public and collective goods, for instance; less extremely, it includes payments into pension schemes linked to employment, payments of endowment insurance premiums linked to mortgages. To this extent, Maintenance is the consumer behavior inherent in pursuing the normal business of citizenship. In the workplace, it may include the enforced use of areas under smoking bans which, for smokers, represent a severe limitation on behavior (though for nonsmokers, particularly the allergic, they constitute an opening of the setting, a measure that permits a wider range of behaviors).

RESEARCH

Three strands of research exemplify the attempt to test the model: the prediction of verbal behavior with respect to consumers' emotional responses to retail and consumption environments, the application of matching and maximization techniques to consumer choice, and the analysis of consumer demand. We are also developing experimental work and a methodology of case study, but I will concentrate here on the first three.

Verbal behavior and emotional response

The first aim was to test the model as a whole, to understand whether (and if so how) the three structural variables of setting scope, utilitarian reinforcement and informational reinforcement interacted. The first study, undertaken in England, employed A tripartite classification of verbal responses to the emotions engendered

by different environments, based on Mehrabian and Russell's theory of environmental psychology. The three dominant emotions are *pleasure*, *arousal*, and *dominance.* The verbal measures of these emotions were interpreted as predictable in various consumer contexts defined by the BPM. Utilitarian reinforcement was proposed as engendering the verbal responses that Mehrabian and Russell proposed to measure *pleasure* which implied satisfaction and utility. Informational reinforcement, the verbal responses related to *arousal* which emphasize environmental feedback and the monitoring of changing circumstances. The scope of the consumer behavior setting was assumed to correspond to the verbalizations that M&R linked to dominance (being in control as opposed to being subject to another).

This is not the kind of research framework that experimental behavior analysis would enjoin upon us, but it seems particularly appropriate for the testing of what is essentially an interpretive device for understanding complex human behavior rather than an experimental technique for use in the closed settings of the operant laboratory.

Both the predictions and the results of this work are shown here. The expectations of a larger *pleasure* score for higher utilitarian reinforcement, denoted by an uppercase as opposed to a lower case P was borne out. Similarly a larger *arousal* score was found for greater informational reinforcement (denoted by A), and a larger *dominance* score characterized a more open consumer behavior setting scope (D).

The results indicate that by using P, A and D, as predicted verbal responses to the consumer situations defined by the BPM contingency matrix, it is possible to make useful predictions of consumer behavior. This work has been replicated in Venezuela, in Spanish, with similar results.

Matching and maximization

We turn now to a research area much closer to the heart of behavioral economics. An important debate in the evolution of behavioral economics has been – and to some extent remains – the question whether consumers maximize in some sense or follow some other decision rule such as satisficing. Controversy has long surrounded economists' assumption that consumer behaviour maximizes utility (or the satisfactions obtained from owning and using economic products and services).

Failure to generate definitive experimental data has not deterred these behavioral scientists from suggesting, in the absence of any direct evidence, how the behaviour of human consumers is related to the system of rewards that ostensibly maintains it. The application has, however, devised and tested a method of obtaining data on consumers' purchase choices over time which have direct relevance to our understanding more clearly how consumer choice is distributed over a sequence of purchase occasions, and when such behaviour can be said to maximize.

Matching refers to the tendency of animals and humans to distribute their responses between two choices in proportion to the patterns of reward programmed to be contingent on each choice. Herrnstein discovered, defined and built upon this phenomenon. Defining choice not as an internal deliberative process but as a *rate* of intersubjectively observable events that are temporally distributed, Herrnstein's dependent variable was not the single response that needed contextual explication in terms of a single contingent reinforcer: it was the relative frequency of responding,

which he explained by reference to the relative rate of reinforcement obtained from the behavior.

Most choices for human consumers require the allocation of a fixed income between alternative choices, each of which exacts a different monetary sacrifice. In this case, responses take the form of surrendering money in varying amounts, while the reward is the receipt of a fixed amount of the good in question. Price is the ratio of units of money that must be exchanged for units of the good. Both matching and maximizing theories make a similar prediction of behaviour on such schedules: the individual will maximize by exclusively selecting the schedule that provides the higher return. Studies of animal choice confirm this prediction.

Matching, then, is the tendency of individual organisms to allocate responses among alternatives in proportion to the reinforcement obtained from each. The matching relationship is represented by the Generalized Matching Law (Baum, 1974):

$$\log (B_1/B_2) = s \log (R_1/R_2) + \log\ b \qquad (1)$$

where B_1 and B_2 are the allocations of behavior to choices 1 and 2 respectively, R_1 and R_2 are the rates of reinforcement derived from choices 1 and 2 respectively, b is a measure of bias in favor of either B_1 or B_2 that stems from factors other than the schedules of reinforcement in operation, and s is the sensitivity of the behavior ratio (B_1/B_2) to the reinforcement ratio (R_1/R_2).

The parameter log b or *bias* constitutes the intercept of the linear log-log formulation of the law. Deviations of this parameter from unity are interpreted as indicating a consistent preference for one option independently of its reinforcement rate schedule. Such bias is generally a result of experimental artifacts that could make one response less costly than the other. The exponent s constitutes the slope of the linear log-log formulation, and corresponds to a deviation from ideal matching ($s = 1$), indicating that the individual favors the richer ($s>1$, overmatching) or the poorer ($s<1$, undermatching) schedule of reinforcement more than predicted by the matching law. Furthermore, research using matching analysis with qualitatively different reinforcers (e.g. food and water) has shown to be an exception to the predictions of matching law. When using qualitatively different commodities, as gross complements (i.e. when an increase on the consumption of one product requires the increase of the consumption of a second product, as is the case with food and water), it has been found that choice ratio has an inverse relationship with the reinforcement ratio, showing the exact opposite of what the matching law predicts. Hence, this particular effect has been named *antimatching,* and in operational terms it consists of a result of $s<0$ in the generalized matching equation.

On the assumption that s is a measure of the substitutability of the choice alternatives available, under- or over-matching and anti-matching presumably indicate some level of the independence or complementarity of these options. Another assumption of our empirical work was that the price structures faced by consumers resemble the ratio schedules. As predicted in the case of behavior on such schedules, consumers should both match and maximize by always selecting the most favorable option, the cheapest alternative. By and large, our analyses found both patterns: brand competition was generally marked by ideal matching, while product choices, as demonstrated here by wine and cola purchases by some degree of under-, over- or anti-matching. Relative demand curves were generally down-ward sloping. Again with some exceptions, consumers maximized by purchasing the least expensive of the

brands composing their considerations sets – shown here by their consistently selecting to the right of the midpoint.

Where there were exceptions from the predictions of matching and maximizing theories, they occurred for reasons peculiar to the marketing context: first, because the composition of consumers' consideration sets often meant that their selections were among premium priced, higher quality brands, or at least those more highly differentiated through promotional activity, rather than among all of the brands that made up the product category. As a result, their selecting the least expensive brand refers only to their choosing within the limitations of this subset of available product versions. A second source of exception was that some consumers bought more than one brand on a single shopping trip, often adding a rather more expensive brand to the cheapest within their consideration set. No doubt the different brands were intended for distinct situations of usage, as when a standard and less expensive fruit juice is purchased for consumption by children of the household in the course of the day and a more expensive version is obtained for the family's use at breakfast. The sheer desire for variety sometimes led consumers to select a more expensive brand on occasion, either in addition to or instead of the cheapest alternative. In the qualitative phase of the research one respondent reported that she "just had to" buy a distinctively-flavored brand of butter from time to time; another, that she would purchase a cheaper store brand sometimes even though this was not part of her regular repertoire simply as a result of the convenience of shopping at a different supermarket. But, apart from these predictable exceptions, the predictions of both matching and maximization theories were fulfilled. Although matching is a truism in the case of consumer choice – the more one buys, the more one spends, and at more or less constant prices the relative amount spent on one brand will be proportionally similar to the relative amount of it that is bought – these studies have clarified a number of matters in marketing and consumer research.

Consumer demand analysis

Much of the work on demand analysis has involved comparison of the buying patterns of consumers grouped by their predominant purchasing of brands having specific patterns of informational and utilitarian reinforcement. Hence, consumers were classified in one of six groups, derived from the combination of the three levels of informational and the two levels of utilitarian reinforcement, on the basis of the informational-utilitarian level of the brands they bought more frequently. The six groups were named as follows: Group 1 - Informational Level 1 and Utilitarian Level 1; Group 2 - Informational Level 1 and Utilitarian Level 2; Group 3 – Informational Level 2 and Utilitarian Level 1; Group 4 – Informational Level 2 and Utilitarian Level 2; Group 5 – Informational Level 3 and Utilitarian Level 1; and Group 6 – Informational Level 3 and Utilitarian Level 2.

Groups' buying patterns were compared in terms of elasticity of demand, using the equation

$$Log\ Quantity = a - b\ (Log\ Price) \qquad (2)$$

as suggested by Kagel et al. (1995).

All regressions, using the above equation (calculated with relative measures of quantity and price), were statistically significant (i.e., $p < .000$ for all groups). The values of R^2 were not very large and ranged from .22 to .46, indicating that other variables that did not enter the equation also influenced the quantities consumers bought. The values of standard error were all ten or more times smaller than the corresponding coefficients of price elasticity, *b*, suggesting accurate estimations of the latter. All price elasticity coefficients were negative indicating that the quantity consumers bought tended to decrease with increases in price. Moreover, all coefficient values were between zero and –1.0, indicating that demand was inelastic for all consumer groups. Despite these similarities, the absolute values of elasticity coefficients were lower for the extreme groups, Groups 1 and 6, than for the other groups, suggesting that consumers that buy predominantly intermediate-level brands showed higher price responsiveness than those buying predominantly the least- and highest-differentiated brands (split-sample reliability analyses confirm this trend).

Intra- and inter-brand elasticities

The observed decreases in the quantity bought with increases in prices, indicated by negative elasticity coefficients, may, however, have been associated with different response patterns by different groups. The tendency to buy larger quantities when prices are lower may be related to one or more of the following three patterns:

1) buying larger quantities of a product when its price was below its usual, average, price rather than when its price was above its average price (i.e., intra-brand or absolute elasticity); 2) buying larger quantities when buying brands belonging to cheaper, lower informational levels than when buying brands belonging to more expensive, higher informational levels (i.e., informational inter-brand or relative elasticity); and 3) buying larger quantities when buying brands belonging to cheaper, lower utilitarian levels than when buying brands belonging to more expensive, higher utilitarian levels (i.e., utilitarian inter-brand or relative elasticity).

One way of measuring such patterns is to decompose the global price elasticity coefficient into three different coefficients, namely, intra-brand, informational inter-brand, and utilitarian inter-brand coefficients. This analysis would yield an equation in which the quantity bought would be a function of intra-brand changes in price, informational reinforcement levels of the purchased brands, and the utilitarian reinforcement levels of the purchased brands, that is,

$$Log\ Quantity = a - b1\ (Log\ Intra\text{-}Brand\ Price) - b2\ (Log\ Informational\ Level) - b3\ (Log\ Utilitarian\ Level). \quad (3)$$

All regressions were statistically significant (i.e., $\underline{p} < .000$ for all groups). The values of R^2 were not very large and ranged from .06 to .36, indicating that other variables that did not enter the equation also influenced the quantities consumers bought. Only three, out of 18, values of standard error were ten or more times smaller than the corresponding coefficients of price elasticity, $\underline{b}$, suggesting that coefficient estimations were not very accurate (although split-sample reliability analyses corroborated the observed patterns). Collinearity analyses yielded values of tolerance and VIF close to 1.00, suggesting that there was no significant covariance among variables included in the equation. All price elasticity coefficients were negative

indicating that the quantity consumers bought tended to decrease with increases in intra-brand price variations, informational level and utilitarian level. Moreover, with the exception of the intra-brand coefficient for Group 2 (-1.51), all coefficient values were between zero and –1.0, indicating that all three types of demand tended to be inelastic for all consumer groups. Despite such similarities, the absolute values of intra-brand, informational inter-brand, and utilitarian inter-brand elasticity coefficients differed across consumer groups, as shown in here:

Intra-brand elasticity coefficients were lower for Groups 1 and 6 than for the intermediate groups, showing a decreasing trend from Group 2 to Group 6. This suggests that consumers buying predominantly the cheapest, least-differentiated brands (i.e., Group 1) do not change much the quantity they buy as a function of changes in brand price relative to their usual (average) price. This result suggests a tendency of buying the cheapest brands, irrespective of other, a little more expensive, brands. If this interpretation is correct, the observed pattern for intra-brand elasticity, which was largest for Group 2 and decreased systematically as group classification increased up to Group 6, can be interpreted as suggesting that responsiveness to intra-brand changes in price decreases as group classification increases. In other words, if the low intra-brand elasticity observed for Group 1 is a consequence of buying the cheapest brands most of the time, these findings point to the conclusion that as the level of differentiation of the purchased brands increases (i.e., as the price of purchased brands increases), the responsiveness of consumers to changes in prices decreases.

Informational inter-brand elasticities were smaller than intra-brand elasticities for all six groups and followed a similar pattern, with Group 1 showing a low coefficient, Group 2 showing the largest one which decreases systematically with increases in group classification up to Group 6. This suggests that consumers buying mostly the least-differentiated, cheapest brands do not change much the quantities they buy as a function of informational brand level, whereas the responsiveness to informational reinforcement of those buying intermediate-level brands decreases systematically with increases in the informational level of the predominantly purchased brands. This value is close to zero for Group 6, suggesting that consumers that already usually buy the highest informational and utilitarian level brands are not sensitive to changes in informational level (similar to a “satiation” effect, since satiated animals are not expected to be responsive to food, i.e., to do things to get food).

Utilitarian inter-brand elasticity, indicated by the filled circles, was higher for the three groups that bought predominantly low utilitarian-level brands (i.e., Groups 1, 3 and 5) than for the other three that bought high utilitarian-level brands. This finding indicates that consumers who buy predominantly brands with low utilitarian levels tend also to buy smaller quantities of higher utilitarian brands, whereas those that buy predominantly brands with high utilitarian levels do not seem to vary much the quantities they buy as a function of utilitarian brand level. Hence, the utilitarian inter-brand elasticities followed a slightly different pattern from the informational inter-brand elasticities, though like them they were mostly smaller than intra-brand elasticities. Group 1 is the only exception with a coefficient larger than that of the intra-brand elasticities, if only marginally. Whereas the other two curves follow a similar pattern, the shape of the utilitarian curve is different in that it follows a zigzag course with Group 2 showing a lower coefficient than Group 1 and 3, and similarly Group 4 and 6 displaying a lower coefficient than their neighbor groups. The

implications of this pattern are more complicated because it suggests that consumers buying mostly at utilitarian level 1, i.e. Groups 1, 3 and 5, are more sensitive to changes in utilitarian level than consumers with a preference for utilitarian level 2, independent of the informational level of the brand. For example, consumers who mostly buy the least-differentiated, cheapest brands (i.e. Group 1) are more likely to buy larger quantities than consumers who buy at but a higher utilitarian but at the same informational level (i.e. Group 2). Consumers of Group 3 however, with a lower utilitarian level than Groups 2 and 4 but a higher informational level than Group 2 and the same informational level as Group 4, is in turn more responsive to utilitarian reinforcement than both Group 2 and 4.

Combining Matching and Demand Analysis

Finally we would like to mention, albeit briefly, some work that is in progress right now. The combination of matching analysis and elasticity of demand has led to the testing an equation that relates amount spent to quantity bought, utilitarian reinforcement obtained, informational reinforcement obtained, and price paid (which detects promotions).

The results for a single product so far – the humble but ubiquitous baked bean – indicate that the expected relationships between all these variables were found, and that – very reassuringly – the R^2 value is high.